

# Network for Cooperation in Integrated Water Resource Management for Sustainable Development in Latin America and the Caribbean



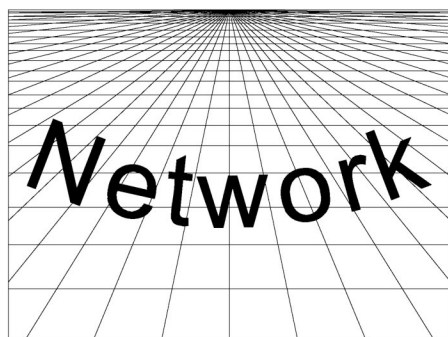
United Nations Economic Commission for Latin America and the Caribbean (ECLAC)

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Worldwide, between 20% and 40% of the money circulating in the water sector is lost to corruption. In addition to being morally reprehensible, this practice has disastrous consequences for the population—especially the most vulnerable segment—because it affects people's lives and health and compromises economic growth by scaring off investors and artificially increasing costs. It also violates human dignity, cheats the poorest out of their prospects for a better life and cripples democracy and the legal system.



Corruption is not inherent to any given country or region of the world, but it is more likely in specific sets of circumstances. In the case of the drinking water supply and sanitation sector, some of the circumstances that help create an environment favourable to the lack of transparency are unfettered power in the hands of service providers and authorities (particularly at the local level); costly, large-scale construction projects and contracts; multiple layers of decision-making; and the absence of the controlling force of competition. Attendant circumstances that contribute to this scenario too often include weak, inadequate government and legal institutions and poorly defined regulatory frameworks.

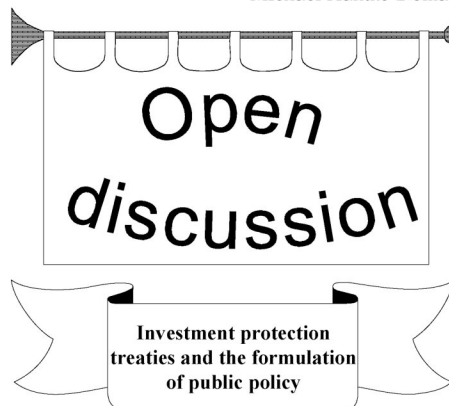
Corruption is usually defined as “the abuse of public office for private gain”. It can run from extortion to more subtle things, such as conditional contributions to election campaigns or the revolving door between Government and private business. There are two kinds of corrupt behaviours. One, petty corruption, refers to the exchange of small

sums of money for small favours, or hiring friends and relatives. The other, grand corruption, involves high government officials engaged in illicit transactions.

One way to address these problems is to integrate concepts such as transparency, participation and accountability into public policy planning, decision-making and implementation. These measures should be built into the legal framework to give them stability and continuity over time. But they risk becoming meaningless if the community is not empowered to demand the elimination of corrupt conduct through the legal system. A clear indication of how serious a country is in fighting corruption is strict regulation of the sector and of the financing of political activity, oversight of conflicts of interest, and respect for a stable, professionalized and sufficiently paid government apparatus.

Along with these measures there are many initiatives that communities can easily implement to help prevent corruption. These include corruption surveys, participatory assessments, regulation of conflicts of interest, open-meeting laws, e-government, media training, lobbyist registration, integrity pacts and codes of ethics.

*Michael Hantke-Domas*



The number of bilateral investment treaties (BITs) ratified by the countries of Latin America, as well as the number and nature of investment arbitrations taking place, has made the system for protecting foreign investments

a key consideration in designing and implementing effective public policy in strategic sectors of national economies. How arbitrators rule on the relationship between State authority and the right to private property in regulating public services often deviates from the legal standards followed by domestic legal systems and constitutional courts, for the protection of the public interest, social peace and efficiency. The negative consequences of this jurisprudence are felt at the institutional, political, social and economic levels.

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Within the framework of the “Building Commitment, Efficiency and Equity for Sustainable Water Supply and Sanitation in Latin America and the Caribbean” project undertaken jointly by ECLAC and the German Technical Cooperation Corporation (GTZ) and financed by the German Federal Ministry for Economic Development and

Cooperation (BMZ), the ECLAC Natural Resources and Infrastructure Division will soon publish a study entitled “*Tratados de protección de las inversiones e implicaciones para la formulación de políticas públicas*” (*Investment protection treaties and the formulation of public policy*) by Juan Pablo Bohoslavsky. In this issue we present part one of the recommendations on what countries could do to foster the sustainability, predictability and legitimacy of the system for protecting foreign investments while promoting the positive externalities of such investments in host countries.

### **Negotiating bilateral investment treaties and investment agreements**

As soon as the very idea of a foreign investment agreement arises, strategic thinking is required to visualize how the investment will be made and plan for potential disputes. This means that official negotiators, not only of BITs but also of investment contracts that define the rights and obligations of the parties, must act as if their practices were being judged by arbitrators. If they promise something, either implicitly or explicitly, the investors will demand it. If they make ambiguous statements, they will run the risk of those statements being interpreted as confirming the investors’ claims.

Duly trained technical personnel should participate in the negotiations in addition to political officials. These technical personnel should come from the areas responsible for attracting investments and —what is extremely important— from government regulatory agencies. This should result in the regulators being more involved in planning and negotiating BITs and investment contracts. They will thus be able to warn about potential future impacts of the commitments negotiated. Because actions by local authorities commit the national Governments under BITs, the local regulatory authorities should also commit themselves in the negotiations.

Before negotiating with the investor, a diagnostic review of the sector should be performed to determine weaknesses, needs and challenges for the future. Both that assessment and the development strategy should be an integral part of the negotiations and the preliminary documents that subsequently become the investment agreement. In the event of an arbitral dispute, these documents will provide an understanding of how the Government sees certain commitments.

It is important to specify from the outset exactly what the State expects from the investment, what the guiding principles governing the relationship between the State and the company will be and how they will

evolve, and what the company’s responsibilities are. This will lessen the regulatory loopholes and keep them from being integrated by an expansive arbitral interpretation. It will also eliminate the risk of the decisions straying too far from what the parties to the dispute expected from each other.

As is standard practice in the private sector, the Government should draft a document or statement of basic, uniform principles to be respected by the officials who will commit the State during investment contract negotiations. Because this statement of principles could not be changed by statements made by agents, negotiators have less margin for error and there is less room for corruption.

Training programmes for government officials who negotiate investment accords or contracts should include specific courses on investment protection and regulatory issues. Officials will thus be able to appropriately gauge the medium- and long-term legal consequences of their decisions (see Circular N° 26).

Specific regulations should be put in place concerning the deposit and custody of documents related to pre-contract formalities and the operation itself, in order to ensure that they are available for submission in the event of a trial —even decades later if necessary. Another suggestion is to avoid committing to the confidentiality of the contractual documents that could help ensure a ruling in favour of the State in the event of arbitration.

### **Drafting contracts and standards**

If the rules (and contracts are rules) that govern an investment are ambiguous, the arbitrators may assume that ambiguity favours a normative interpretation that is beneficial for the investor. Contracts should therefore spell out the rights and obligations of each party, as well as what they expect of each other. The parties’ interests and goals should be described, as should the general and specific principles that will govern their relationship. In the event of an arbitral dispute, those principles will help decrease uncertainty as to the rules that apply to the investment. The chapter on applicable law is thus a relevant consideration in drafting contracts.

Most investors are likely to resist making disputes subject to the provisions of host country domestic law. But it is also true that international law contains principles that seek to appropriately balance the interests at play in such disputes. In this case, when comparing the state of the legal art with generally accepted practice, both the international law and the comparative law that will govern arbitration should be mentioned. They will

not necessarily coincide with investment protection standards as usually interpreted by arbitral jurisprudence. Applicable law can refer specifically to good faith principles, advanced regulatory principles, the duty of prudence and reasonableness in business management, and the principle of efficiency, *inter alia*. This would substantially improve the principles that apply in the event of a dispute.

Reference may also be made to principles or standards as recognized in specific decisions, or they can be described to bar their application. For example, the manner in which regulatory evolution and its impact on investor status were understood in *Metalclad v. Mexico* is very different from the criterion adopted in *Methanex v. USA*.

Another possibility is to include specific principles that, while not directly related to investor rights, could also be relevant in the event of arbitration because of the multiple areas and relationships that an investment can, in practice, affect. Referring to domestic and international principles concerning indigenous peoples, human rights, environmental protection, labour rights, natural resources and other issues can force a more holistic reading when ruling on investment disputes, especially considering that many rulings tend to a partial view of the complex social, political and economic variables that interact in such disputes.

In addition to describing current law at the time of finalizing the contract, it is also advisable to prospectively determine, to the extent possible, the direction in which such regulations will evolve. At this point, reference should be made to how the legal framework is expected to improve over time in line with the state of the art in this area, best practices, scientific knowledge of the activity in question and other considerations of this nature. This does not mean imposing investor performance standards (which are not infrequently barred by BITs) but rather anticipating the direction that regulations will take so that all of the parties are aware of it. Barring performance standards shall in no event be expansively interpreted to justify or encourage inefficient conduct on the part of the investor.

Lastly, contracts should include an investor due diligence clause clearly requiring minimum standards of professional care in practicing their economic activity in the market.

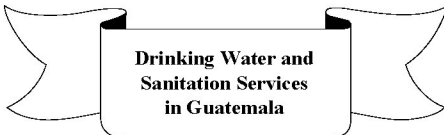
Investment contracts need a certain normative hierarchy depending on the legal system involved, so these considerations on drafting them apply transitively to the drafting of decrees and laws because they are also government commitments *vis-à-vis* investors.

Citizen participation in and oversight of the drafting and conclusion of investment agreements, especially in strategic or sensitive sectors of the economy, would enhance this proposal. Citizen demands that their social and economic interests be taken seriously can lead to contracts including standards and principles that appropriately protect and further those interests. This requires the professionalization and specialization of user representatives and non-governmental organizations; to this end, the State can undertake an active training policy.

# Meetings



Within the framework of the “Building Commitment, Efficiency and Equity for Sustainable Water Supply and Sanitation in Latin America and the Caribbean” project, the Natural Resources and Infrastructure Division has collaborated in several meetings with the water supply and sanitation authorities of the Bolivarian Republic of Venezuela, Chile, Guatemala and Peru. Information on these meetings is provided below.

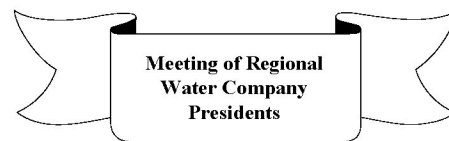


As part of collaboration with the Government of Guatemala, the Natural Resources and Infrastructure Division is working on Emilio Lentini’s study “*Servicios de agua potable y saneamiento en Guatemala: beneficios potenciales y determinantes de éxito*” (*Success factors for and the potential benefits of drinking water and sanitation services in Guatemala*). The purpose of the study is to help formulate public policies for Guatemala’s drinking water supply and sanitation sector.

A workshop was held in Guatemala City on 10 November 2009 to present and examine the contents of the study and discuss the main findings and recommendations with government authorities, national experts and representatives of international cooperation agencies. The workshop was organized by the Technical Secretariat of the Specific Water Cabinet (national counterpart). The workshop reached the objective to assess and put in order of importance the problems and issues at hand. The review and data were completed, errors and omissions in the draft were identified, and the main considerations and components of the proposed drinking water

and sanitation sector reforms were reviewed and discussed, improving and enriching the study’s findings and recommendations.

The day before, the project team participated in the Twenty-Sixth Central American Congress and the Fifth National Congress on Sanitation and Environmental Engineering (Guatemala City, 8-11 November 2009). The team presented to the national and regional community the findings of the Natural Resources and Infrastructure Division work on drinking water and sanitation issues at the regional level and in Guatemala.



The Natural Resources and Infrastructure Division cooperated with the water supply and sanitation authorities of the Bolivarian Republic of Venezuela in the context of the *Meeting of Regional Water Company Presidents* (Caracas, Bolivarian Republic of Venezuela, 25 November 2009) and the *Strategic Planning Workshop* held by Compañía Anónima Hidrológica del Caribe (HidroCaribe) (Margarita Island, Bolivarian Republic of Venezuela, 26 November 2009).

HidroCaribe (see Circular N° 25) is spearheading a major change in strategy to improve the quality of service. An essential component of this process is improving management planning and control systems, commercial processes and the technology platform, seeking to balance centralized and decentralized processes and activities. And HIDROVEN, the drinking water supply and sanitation sector parent company (see Circular N° 19), has launched a round of discussions geared to adjust the sector’s institutional framework in order to achieve greater effectiveness and efficiency in providing services. Against this backdrop, the purpose of the cooperation was to present and discuss the findings of the division’s work on economies of scale and regulatory accounting. The following was noted concerning the first matter:

- Empirical studies find economies of scale for service providers serving up to 1 million inhabitants or dispatching up to 100 million cubic metres of water a year, with the minimum efficient scale being between 100,000 and 1 million inhabitants. From that point on, constant returns to scale or diseconomies appear.
- There are reasons to believe that these studies seriously underestimate the economies of scale.
- More than a problem of radical options, the key is to structure balanced systems tailored to national conditions, with legal and political authority assigned to

appropriate levels of government in accordance with technical considerations, resource availability, management capacity and, above all, objective criteria geared to capitalize on economies of scale and reduce transaction costs.

- Continuing with a highly fragmented industrial structure means that the benefits of economies of scale would not be passed on to consumers in the form of lower rates and better service, as widely shown by international experience in this field.

It was stressed that regulatory accounting is an essential tool for effective regulation that is equally useful when services are provided by public, private or mixed companies.



The Natural Resources and Infrastructure Division cooperated with Chile’s Superintendency of Sanitary Services (SISS) in the *Seminar on Transfer Prices* (Santiago, Chile, 23 March 2010). This activity has to do with the Superintendency’s concerns as to how to deal with service providers belonging to economic conglomerates and how this could impact tariff setting. Other issues are recent trends in the drinking water supply and sewerage industry not specifically covered by the current regulatory framework.



Set out below are the conclusions from the *Seminar “International Investment Agreements, Sustainability of Infrastructure Investments and Regulatory and Contractual Measures”* (Lima, Peru, 14 to 16 January, 2009) (see Circular N° 31):

The use of BITs to protect the rights of foreign investors is a response by capital-exporting countries to their concerns about regulatory and expropriation processes in developing countries. There are many reasons for the appearance and proliferation of such agreements. One is the mistaken belief on the part of developing countries that signing such treaties will be a relevant factor in attracting foreign investments. Another is the ideological view that activities carried out by the State are intrinsically inefficient, so the best State is the one that interferes the least, even in matters that are relevant to protecting the public interest. Experience has shown both preconceptions to be mistaken. There are countries like Brazil, where the lack of BITs has not discouraged foreign investment. And insufficient active controls on the part of States led to the financial and service sector

crisis that the world faces today. This statement is corroborated by the fact that the major economies have toughened and expanded regulation of economic and financial activities. Paradoxically, such measures are associated with market deepening.

However, the guiding principles of BITs could influence the efforts being made by developing countries that sign them to implement controls similar to those in place in more advanced economies. This is because some of the investor rights established in such treaties (non expropriation, fair and equitable treatment, national treatment, most favoured nation status and the ban on performance clauses) compromise the regulatory function of the State. Three factors contribute to this:

- Investment disputes generally involve matters of public interest, such as the banking system, essential public services and the environment. But the arbitrators are mandated to protect the foreign investor. Their mandate thus has nothing to do with environmental, public interest or public service matters.
- Investment arbitration tribunals may be convened only at the request of the investors; this compromises their impartiality and due process. For example, decisions are made in closed proceedings without obligatory precedent or a traditional appeal process. Arbitrators are paid on the basis of the cases they hear, in which they can act as judges and attorneys at the same time. This creates potential conflicts of interest. And they tend to broad interpretations of what constitutes expropriation and violation of due process. All of this compromises the regulatory capacity of States to protect the public interest.
- There are serious divides between international investment tribunal jurisprudence and the general principles of the law of nations applicable to the economic regulation of drinking water supply and sanitation services.

These divides are especially marked in the following areas:

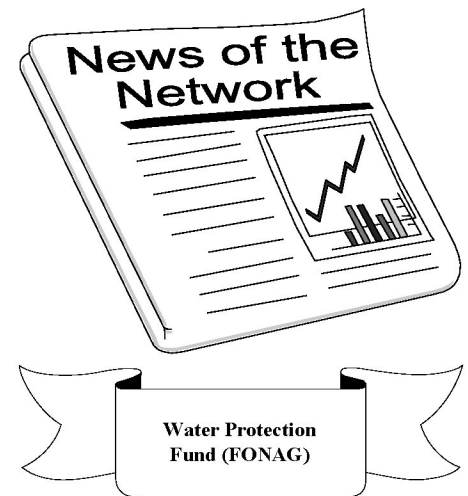
- Measures to address the impact of the economic crisis on public services. With some exceptions, arbitral jurisprudence tends to ignore the criteria followed by national courts, which in times of crisis are inclined not to increase rates, suspend payments, change interest rates or suspend execution of a judgement.
- The common legal principles that govern the activity of private investors when they provide public services (such as efficiency, due diligence, transparency and reasonable conduct) are virtually ignored by international arbitral tribunals despite their undisputed relevance in comparative law.

- Regulation in the public interest, which arbitral tribunals often equate to expropriation while ignoring virtually all of the general principles of the law of nations in this area. This is especially serious in matters of the environment, human rights, public services, water, ethnic minorities and natural resources.

The following suggestions were therefore made:

- Countries should be wary of signing BITs that do not contain clauses to protect the public interest or assert the general principles of the law of nations concerning regulatory matters.
- The rights of foreign investors should be linked to their correlative responsibilities, such as efficiency, due diligence, good faith and respect for host country public interest and legal standards.
- Reform of the investment arbitration system should be encouraged in order to correct its procedural dysfunctions, including lack of accountability, deficit in disclosure and participation, the absence of systems for unifying arbitral jurisprudence and the lack of independence (conflicts of interest) on the part of arbitrators.
- There should be support for the express inclusion, as applicable law in investment arbitrations, of common regulatory principles developed in comparative law concerning protection of the public interest, the environment, water, public services and human rights and managing the economic crisis. The BITs have given rise to a legal system under which the international institutional framework is starting to take precedence over domestic law, applying principles that are not in line with the matter at hand and do not coincide with the law that nations apply in like circumstances.
- Before accepting international private investment in public services, countries should develop and implement regulatory frameworks based on the fundamental principles of efficiency, good faith, equality before the law, due diligence and transparency. In this regard, the guidelines for the review of rate formulas approved in 2008 by Peru's National Superintendency of Sanitation Services (SUNASS) (see Circular N° 31), are an example of sophisticated regulatory technique.
- It should be made clear to investors that going through formalities with foreign investment promotion agencies does not exempt them from meeting all of their obligations with the competent sectoral bodies (such as the environmental, water and social security authorities), nor is it an excuse for ignorance of national legislation and regulations.
- Investment promotion agencies should not grant authorizations without express

approval by the competent sectoral bodies in matters of public services, water resources and the environment.



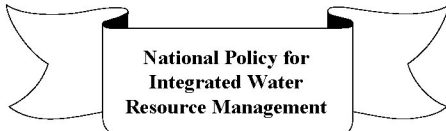
The water supply for the Metropolitan District of Quito, Ecuador, comes from watersheds in the uplands of the western and eastern Andes. Unfortunately, inefficient use of this resource, pollution, overexploitation of groundwater resources and the growing demand for meeting human needs are affecting both the quality and quantity of water resources.

In view of the situation, the Municipality of the Metropolitan District of Quito and the Metropolitan Drinking Water and Sewer Company of Quito (EMAAP-Q), along with The Nature Conservancy (TNC), created the **Water Protection Fund (FONAG)** (see Circular N° 29). The fund is financed by contributions from EMAAP-Q, Empresa Eléctrica Quito (EEQ), TNC, the Swiss Agency for Development and Cooperation (SDC), Cervecería Andina and Tesalia Springs Co. FONAG uses the returns on its equity to intervene, on a priority basis, in the watersheds that provide water to Quito. Intervention is in the form of long-term programmes (such as restoring the vegetation cover, environmental education, surveillance and monitoring of protected areas and water management) with the active participation of the communities living in the watersheds. FONAG also supports projects to improve sustainable productive systems, build local capacity, conduct research and foster sustainable self-development, among others, seeking to lead processes that help ensure a good quality water supply.

This management approach and the way it is funded were highlighted by the United States Secretary of State, Hillary Clinton, in her speech on the occasion of World Water Day (see Circular N° 22), 22 March 2010. She noted that 10 years ago in Ecuador, the United States Agency for International Development (USAID) launched its support for the establishment of a water trust fund to protect the watersheds that supply water to the Metropolitan District of Quito and



surrounding areas, seeking to ensure the medium- and long-term availability of water. Secretary Clinton added that thanks to the efforts of many partners, the fund now tops US\$ 6 million and is financing US\$ 800,000 in conservation activities each year. FONAG's achievements have led to the creation of similar funds in Ecuador (Ambato, Riobamba, Cuenca, Loja and Espíndola) and elsewhere (Colombia and Peru).



On 19 March 2010 Colombia's Ministry of the Environment, Housing and Territorial Development launched the *National Policy for Integrated Water Resource Management* (PNGIRH), which establishes goals, strategies, targets, indicators and lines of action for managing water resources over a 12-year horizon. This policy is based on the following principles:

- **Good in the public domain.** Water belongs to the public domain, and conserving it is everyone's responsibility.
- **Priority use.** Access to water for human and domestic consumption shall take priority over any other use and is therefore regarded as one of the primary goals of the State. Collective use shall take priority over private use.
- **Development factor.** Water is a strategic resource for a country's social, cultural and economic development because it enhances life, health, well-being, food security and the operation of ecosystems.
- **Integrity and diversity.** Integrated management of water resources combines local, regional and national processes and acknowledges the country's territorial, ecosystemic, ethnic and cultural diversity and the needs of vulnerable populations (children, older adults, ethnic minorities), and it incorporates the gender approach.
- **Unit of management.** The river basin is the basic unit for the integrated, decentralized management of the water heritage.
- **Savings and efficient use.** Freshwater is a scarce resource, so its use should be rational and based on savings and efficient use.
- **Participation and equity.** Water management should be guided by a participatory, multi-sector approach that involves public entities, productive sectors and other users of the resource. It should be implemented transparently and gradually, and it should favour social equity.
- **Information and research.** Access to information and research is essential for the integrated management of water resources.

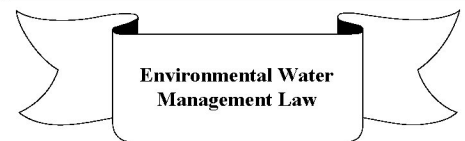
The overarching goal of PNGIRH is to ensure the sustainability of water resources by

means of efficient, effective management and use, coordinated with the management and use of land and the conservation of the ecosystems that determine the water supply, regarding water as a factor for economic development and social well-being and implementing equitable and inclusive participation processes. The specific goals are:

- **Supply.** Conserve ecosystems and the hydrological processes on which the country's water supply depends.
- **Demand.** Define, quantify and optimize the country's demand for water.
- **Quality.** Improve quality and minimize pollution of the water resource.
- **Risk.** Practice integrated management of the risks associated with water supply and availability.
- **Institution building.** Create the conditions for institution building in integrated water management.
- **Governance.** Consolidate and enhance governance as a process involving participation at many levels beyond the State, in which decision-making involves not only public institutions but also private sectors, non-governmental organizations and civil society in general, for the sake of integrated water management.

Strategies for achieving each one of these goals have been defined, as have strategic guidelines and lines of action that provide a road map for each institution and user involved in integrated water management. To move forward on each of these broad guidelines, the National Water Plan shall be designed and implemented to spell out all of the programmes and projects to be implemented in order to attain the specific goals of the policy. The plan will have three phases: short term (2010 to 2014), medium term (2015 to 2018) and long term (2019 to 2022). It will be structured in keeping with the characteristics and peculiarities of each region in the country.

More detailed information on PNGIRH is available at: <http://www.minambiente.gov.co>.



The *Environmental Water Management Law of the Autonomous City of Buenos Aires* (Law N° 3.295), approved on 26 November 2009 and enacted on 11 January 2010, regulates the environmental management of public domain water in the Autonomous City of Buenos Aires, Argentina. Its goals are:

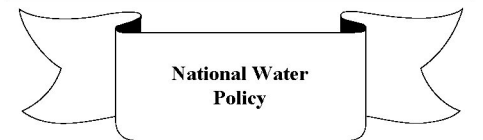
- Protect the environment and ensure remediation and integrated environmental management of water.
- Ensure environmentally appropriate water quality.

- Promote rational, efficient, equitable and sustainable water use and management.
- Foster technological innovation and the management of environmentally appropriate processes.

Certain provisions of the law refer to resource conservation, water use regimes, violations and penalties and enforcement authority. Some key provisions are:

- The city ensures that all its inhabitants have access to enough drinking water of appropriate quality for personal and domestic use, as a basic human right.
- The city's water policy is based on the guiding principles defined by the Federal Water Council (COHIFE) in its Federal Water Agreement (see Circular N° 23).
- The city should agree with the other jurisdictions with which it shares river basins, on the adoption of measures and policies and the definition of goals and action programmes for these basins.
- Enforcement authority is vested in the Environmental Protection Agency of the Government of the Autonomous City of Buenos Aires.

The text of the law may be accessed at: <http://www.cedom.gov.ar>.

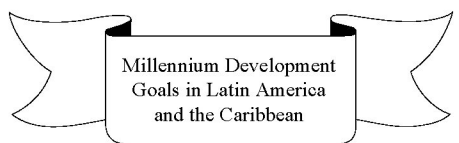


In Uruguay, Law N° 27845, "*National Water Policy. Guiding Principles*" was enacted on 28 October 2009. According to this law, the National Water Policy principles shall be:

- Sustainable water resources management that is solidary with future generations, as well as preservation of the water cycle, which are matters of general interest.
- The integrated management of water resources —as natural resources— should encompass social, economic and environmental considerations.
- The lack of technical or scientific certainty cannot be cited as a defence for not taking preventive, mitigation or restorative measures against the risk of serious harm to water resources.
- Those who cause harm to the quantity or quality of water resources should be held liable.
- Recognition of the river basin as a unit of action for water resources planning, monitoring and management, for decentralization policy purposes and for land use management and sustainable development.
- Environmental education as a social tool for promoting responsible, efficient and sustainable use of water resources in their social, environmental, cultural, economic and productive dimensions.

- Supplying the population with drinking water is the chief priority for water resource use. Other uses shall be determined taking into consideration the priorities set for regions, river basins and aquifers.
- Access to and use of water shall be guided by the principles of equity, affordability, solidarity and sustainability.
- Strategies for international coordination and cooperation should be promoted to ensure the sustainable management of water resources shared with other States.
- The participation of users and civil society at all levels of planning, management and control.
- State entities are the only ones that can provide —exclusively and directly— public drinking water supply and sanitation services.
- The existing legal framework governing water resources should keep pace with evolving scientific and technical knowledge.

The text of the law may be accessed at: <http://www.parlamento.gub.uy>.



The study “*Millennium Development Goals: Advances in Environmentally Sustainable Development in Latin America and the Caribbean*” (LC/G.2428-P) prepared under the supervision of Alicia Bárcena, ECLAC Executive Secretary, and Joseluis Samaniego, Director of the Sustainable Development and Human Settlements Division with the collaboration of the Natural Resources and Infrastructure Division, tracks the progress on and obstacles to achieving Millennium Development Goal (MDG) 7 concerning environmental sustainability in the region.

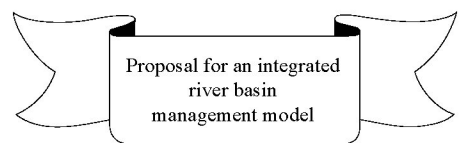
The study sets forth the following principle challenges to overcome in order to meet the targets concerning drinking water supply and sanitation services:

- improve the supply of drinking water and sanitation services to rural areas and low-income groups;
- improve service quality in respect of issues such as continuity and drinking water quality control;
- expand the treatment of urban sewage; and
- ensure the sustainability of services in light of the growing competition for water, the destruction of watersheds, water pollution and the effects of climate change.

Future advances in this respect largely depend on governments’ capacity to deal with two critical issues: (i) improving the financial situation of the sector, which would entail

moving towards self-financing rates, increased budgetary allocations and the creation of an effective subsidy system for the poor; and (ii) improving regulatory, contractual and institutional frameworks, including the industrial structure of the sector.

The complete document may be downloaded from: <http://www.eclac.org>.



Below we provide part two of a paper by University of Chile professor Juan Antonio Garcés on thesis research carried out for a master’s degree in environmental management and planning from the University of Chile, “*Water resource management in Chile: proposal for an integrated management model for the Maipo-Mapocho basin*”.

Water resource management models are determined by the paradigms that are present in society and, especially, in decision-makers. Integrated management is consistent with an ecosystemic approach to water; fragmented management corresponds to a reductionist approach to this resource.

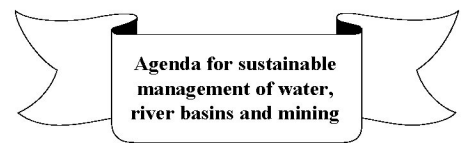
The ecosystemic approach provides an understanding of a river basin as an area where water interacts constantly and dynamically with biotic and abiotic systems. To the extent that it perceives the ecosystem, it recognizes the existence of environmental services such as stream flow regulation, aquifer recharge, pollutant dilution capacity, flood control, nutrient recycling and the creation of species habitats. In this approach, people are an integral part of the ecosystem and should become active players in the management and conservation of natural resources. The reductionist approach contributes to an understanding of the physical and chemical processes that take place in bodies of water.

Each paradigm or approach gives rise to a system of different relationships in which there are institutions, laws and power structures. Water resources are managed in both cases. One relevant difference between the two management systems is the role assigned to the State, the market, hydrological planning and the participation of water users. In the integrated management model, the State takes on the obligation to protect the quantity and quality of the resource, developing a planning system that provides for the active participation of users. In the reductionist system, the State plays a limited role. Solving problems of scarcity is left up to the market; planning does not have a significant role; and there are no mechanisms for dialogue between users and the authorities.

Changing from a fragmented management system to an integrated one is not a linear process, and there is no specific formula to copy. There are, however, at least two conditions to bear in mind:

- willingness on the part of the authorities to change the management system; and
- motivation on the part of civil society, especially users, to establish closer concertation in the resolution of conflicts arising from the existing management system.

In the case of Chile, the Government has proposed legislative initiatives to advance towards integrated management. There is movement in that direction in the Maipo-Mapocho river basin. But to date the reductionist paradigm has been stronger than the initiatives for change, and the power relationships that the system creates have blocked progress toward integrated management of the river basin.



In operation for nearly a decade, the Mining and Sustainable Development Dialogue Group in Peru brings together multiple actors to promote the building of spaces and agendas for intercultural dialogue on mining and its relationship to environmental protection and sustainable development. It also seeks to build confidence among actors in each local reality, supporting conflict prevention and resolution, capacity building and policy enhancements in order to consolidate concerted management processes on the local, regional and national levels.

One of the group’s achievements is the adoption, by consensus, of a broad *Agenda for sustainable management of water, river basins and mining*. This process, highlighted in the report entitled “Informe sobre Desarrollo Humano Perú 2009: Por una Densidad del Estado al Servicio de la Gente” published by the United Nations Development Programme (UNDP), involved a large group of public and private sector actors and from civil society, with the cooperation of the Natural Resources and Infrastructure Division. Some of the most important commitments under this initiative are:

- Responsible cooperation and participation of all actors in river basin and sub-basin management bodies.
- Information, progress reports and participatory plans within the reach of all.
- Expansion of good water management practices to mining.
- Cooperation among actors for the remediation of environmental liabilities.

- Participatory environmental monitoring and surveillance of the extractive industry and the river basin.
- Joint action for formalized, non-polluting artisanal mining.

More detailed information on this proposal is available at: <http://www.pnud.org.pe> and <http://www.grupopedialogo.org.pe>.



Some of the web sites worth visiting for information on water-related issues include the following:

- Guatemala's **System for Strategic Socio-Environmental Information** (SIESAM) is a tool that provides information management support to research programmes at the Institute of Agriculture, Natural Resources and the Environment (IARNA) at Rafael Landivar University (<http://www.infoiarua.org.gt>). Some of the institute's goals that are set out on the website for consultation and work purposes refer to: assessing the socio-environmental situation in Guatemala; developing integrated environmental and economic accounting; tracking MDGs; and examining the sustainability of national development with a systems approach.
- The **Drinking Water and Sanitation Information System** (SIAPS) shows drinking water supply, drainage and sewerage systems coverage and wastewater treatment in the State of Veracruz, Mexico. The information is broken down by municipality, urban and rural locations and basic geostatistical areas and blocks, making it easier for the Government and other social actors to target their actions and resources, both on infrastructure and on the order of priority for these areas, as well as water and marginalization issues that require greater attention (<http://siaps.colmex.mx>).
- Paraguay's **Ministry of the Environment** (SEAM) is responsible for formulating policies, coordinating, supervising and implementing environmental actions and programmes and projects under the National Development Plan and those that concern the preservation, conservation, restoration and management of natural resources (<http://www.seam.gov.py>). The Ministry's Directorate General for Water

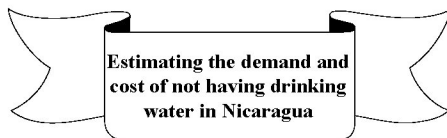
Resource Protection and Conservation oversees processes related to the protection and conservation of water resources to ensure their integrated management in accordance with the hydrological cycle.

- The **International Benchmarking Network for Water and Sanitation Utilities** (IBNET) is the world largest database for drinking water supply and sanitation utilities performance data (<http://www.ib-net.org>).
- **PROHIMET, Ibero-American Network for Tracking and Predicting Hydrometeorological Phenomena**, is an Inter-American thematic network of experts in different fields especially concerned about flood and drought problems, although issues related to global climate change are also discussed (<http://www.prohimet.org>).
- Take a look at the new **Water Technology and Sciences** magazine website (formerly **Hydraulic Engineering in Mexico**) at <http://www.imta.gob.mx/tyca>.
- The proceedings of the **Experience Sharing Seminar on Governance of Sustainable Sanitation Services in Central America** (San Salvador, El Salvador, 1-3 February 2010) may be accessed at <http://www.es.irc.nl>.
- **APRCHILE** is a private initiative for disseminating rural drinking water supply issues (<http://www.aprchile.ch>).
- The **Central Water and Sewerage Authority** (CWSA) is Saint Vincent and the Grenadines' only supplier of pipe borne water and sewerage services (<http://www.cwsasvg.com>). Additionally, the CWSA is responsible for solid waste management services throughout the country. CWSA is a statutory corporation established in 1970, under the revised Central Water and Sewerage Authority Act of 1991. The authority operates as a semi-autonomous public sector enterprise under the Ministry of Health and the Environment (MHE).
- The World Health Organization (WHO)/United Nations Children's Fund (UNICEF) **Joint Monitoring Programme on Water Supply and Sanitation** (JMP) publishes every two years a report on the status and progress towards the MDG target on drinking water supply and sanitation. The latest JMP report, published in March 2010, is available at <http://www.wssinfo.org>.
- **Espacio Agua** promotes universal access to drinking water supply and sanitation as a human right and the integrated management of water resources by means of communication and education actions that foster equity, development and protection of water and ecosystems (<http://www.espacioagua.org.ar>).
- Chile's **Superintendency of Sanitation Services** (SISS) has posted its 2008 **Sanitation Sector Management Report** on its website (<http://www.siss.cl>).
- **Guatemala's Water and Sanitation Network** (RASGUA) groups the national and international entities working on drinking water supply and sanitation issues, as well as other actors who are promoting appropriate technologies and methodologies for the sustainable development of services, focusing on low-income groups with little access to services (<http://www.rasgua.net.gt>).
- **Belize Water Services Limited** (BWS) is the water and sewerage utility for the country of Belize, serving the larger municipal areas of the country. BWS was formed in January 2001 and vested with the assets and liabilities of the former Water and Sewerage Authority in March 2001. Some 83% of the shares of BWS were acquired by Cascal, a joint British-Dutch company, via an investment agreement with the Government of Belize. In October 2005, the government repurchased the majority shares from Cascal, thereby ensuring Belizean ownership (<http://www.bws.bz>).
- The Organisation for Economic Co-operation and Development (OECD) has recently published reports on **Agricultural water pricing in Australia, European Union and Mexico, Japan and Korea, Turkey, and the United States**, on **Economic analysis of the virtual water concept in relation to the agri-food sector**, and on **Financing water management and infrastructure related to agriculture across OECD countries**, which may be accessed at <http://www.oecd.org>.
- The United States Environmental Protection Agency (EPA) has issued its **Clean Water and Drinking Water Infrastructure Sustainability Policy** as part of its efforts to promote sustainable infrastructure within the water sector. The policy emphasizes the need to build on existing efforts to promote sustainable water infrastructure, working with states and water systems to employ robust, comprehensive planning processes to deliver projects that are cost effective over their life cycle, resource efficient, and consistent with community sustainability goals. It encourages communities to develop sustainable systems that employ effective utility management practices to

build and maintain the level of technical, financial, and managerial capacity necessary to ensure long-term sustainability (<http://water.epa.gov>).

- The **Operation and Maintenance Network** (OMN) aims to improve information and expertise exchange on operation and maintenance of drinking water supply and sanitation systems. Its tools, knowledge and other services are focused on the situation in low and middle income countries, and may be consulted at <http://www.operationandmaintenance.net>.
- In Guyana, the Georgetown Sewerage and Water Commission (GS&WC) was responsible for the control, maintenance and management of the sewerage system and waterworks of Georgetown, and the Guyana Water Authority (GUYWA) for delivering water to the suburban, rural and the hinterland regions excluding Linden and those areas supplied by the Sugar Industry Labour Welfare Fund Committee. The **Guyana Water Incorporated** (GWI) was established, resulting from the merger of GUYWA and GS&WC, on 30 May 2002, taking on the responsibility previously divided between these two agencies (<http://www.gwiguyana.com>).
- The objective of the "**Vision 2030: The resilience of water supply and sanitation in the face of climate change**" study of the United Kingdom Department for International Development (DFID) and the WHO is to increase our understanding of how anticipated climate change may affect drinking water supply and sanitation services and what can be done to optimize resilience of technologies, infrastructure and services (<http://www.who.int>).

- The Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD) has published a study entitled "**Measuring irrigation subsidies in Spain: An application of the GSI method for quantifying subsidies**", which reviews and quantifies the subsidies to water supply for irrigation provided in Spain (<http://www.globalsubsidies.org>).
- The proceedings of the **2010 United States Department of Agriculture (USDA)-National Institute of Food and Agriculture (NIFA) National Water Conference** may be accessed at <http://www.usawaterquality.org>.



The study "**Estimación de la demanda y el costo de no tener agua potable en Nicaragua, tomando como base las diferentes alternativas de abastecimiento**" (*Estimating the demand and cost of not having drinking water in Nicaragua, considering the different alternatives of supply*) by Carlos Antonio Narváez Silva ([carlonar06@hotmail.com](mailto:carlonar06@hotmail.com)) assesses the demand for water in homes without piped water service. It uses the theoretical model based on the household production approach, which makes it possible to estimate consumer surplus as a measure of the potential benefits of having water supply inside the home. The estimated benefits were calculated taking into consideration the opportunity cost over a given time span of a household's search for water plus the amount paid for water in the different alternatives (public standpipes, rivers, springs, tankers, carts and wells).

# Publications



Recent publications of the Natural Resources and Infrastructure Division on water resources management and provision of drinking water supply and sanitation services:

- "**Acuerdos internacionales de inversión, sustentabilidad de inversiones de infraestructura y medidas regulatorias y contractuales**" (*International investment agreements, sustainability of infrastructure investments and regulatory and contractual measures*) (*Project Document Series, LC/W.325, June 2010*). This report provides a summary of the discussions, conclusions and programme, as well as a list of participants and two studies elaborated for the Seminar on International Investment Agreements, Sustainability of Infrastructure Investments and Regulatory and Contractual Measures organized by the Natural Resources and Infrastructure Division, SUNASS and IISD (see "**Meetings**").

The publications of the Natural Resources and Infrastructure Division are available in two formats: (i) electronic files (PDF) which can be downloaded from <http://www.eclac.org/drni> or requested from [Andrei.JOURAVLEV@cepal.org](mailto:Andrei.JOURAVLEV@cepal.org); and (ii) printed (hard) copies which should be requested from the ECLAC Distribution Unit, either by e-mail to [publications@eclac.cl](mailto:publications@eclac.cl), by fax to (56-2) 210-20-69, or by mail to ECLAC Publications, Casilla 179-D, Santiago, Chile.

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